CONTRACT #EP-C-17-046
TASK ORDER #0008

TO: Aileen Molloy, Tetra Tech Project Manager
FROM: Emily Cira, TOCOR
DATE: 10/07/2022
TITLE: Lower Yakima Valley Groundwater Contour Mapping and Nitrate Concentrations Model

CC: Michelle Tucker, EPA Region 10

RE: ~~Technical Direction #21 for Ohio to [*insert brief title, e.g., investigate, perform…, etc. sentence linking project to nutrients*]~~

BACKGROUND/CONTEXT:
This Task Order provides support to states, tribes and territories for developing and implementing nutrient reduction strategies and frameworks. In accordance with this Task Order, the Contractor is authorized to initiate the below described activities with respect to the project known as Lower Yakima Valley Groundwater Contour Mapping and Nitrate Concentrations Model ~~*[Project Title]*~~. The Contractor is authorized to spend up to the total funding ceiling noted below on these activities, and to be reimbursed for direct expenses. The nature of this project is described below.

PROJECT BUDGET:
Total funding ceiling (Including other direct costs and travel): $60,000

PROJECT DESCRIPTION:
EPA sponsoring office or region: ~~*Region* 10 HQ/OW/OWOW~~
Other Information: ~~OW, OWOW, Watershed Restoration, Assessment & Protection Division~~Ground Water and Drinking Water Section
Project Location: ~~[*Insert location*]~~Washington State
Technical Contacts (Project Team): ~~[*Insert HQ, regional and state contacts*]~~Michelle Tucker, EPA, Nikki Gaillot WA DOH, Sherly Howe WA DOH

[Add brief narrative providing background, need, actual project and how results will further nutrient strategy.] Yakima County is the second-largest county in Washington, by area, at over 4,000 square miles and is the 8th largest county in Washington by population. Income by median household as well as per capita in Yakima County is below Washington State levels while the average household size is above the state average. This means there are more people living with fewer resources in this area, compared to the State, and with twice as many adults with less than a high school education (31%) this area has unique needs for outreach, education and public health advocacy.

The Lower Yakima Valley Groundwater Management Area (GWMA) was formed in 2012 to address the goal of reducing nitrate concentrations in groundwater. Nearly a quarter of the people

Formatted: Superscript

in Yakima County live in the GWMA and over 60% of them in cities. Approximately half of all local wells are shallow and in an analysis of over 2,500 nitrate sampling results, nearly 13% of those wells exceeded the drinking water standard for nitrate. While many sources contribute to nitrates in groundwater, data from these wells indicate that human activities at the land surface have affected water quality. Additionally, inside the GWMA, over 60% of the population over age 5 speaks a language other than English at home and there is a higher concentration of people who identify as ethnically Hispanic or Latino. A complex technical issue like nitrate contamination in drinking water is difficult to address in any demographic but the cultural context in the GWMA brings an even bigger challenge to reach audiences and effectively address drinking water concerns.

A pilot program aimed to provide water treatment systems directly to residents in 2011 was met with very low adoption rates and served to underscore the unique needs of the community in regard to addressing nitrates in drinking water. Following this pilot, the decision was made to directly provide bottled water to households instead. With support from the Yakima Health District, over 40 homes are now receiving Culligan service funded by the State. Deliveries directly to homes in the GWMA began in May 2022 and will continue with additional funding.

A primary activity of the GWMA plan is to consolidate and analyze groundwater monitoring data. The Groundwater Advisory Committee (GWAC) is working to update the existing hydrogeologic characterization of the area, looking at existing data sources of both historic and current groundwater use and water quality data. Part of this effort includes work funded by the Washington Department of Health (DOH) looking at modeled times of travel to group A community wells to better understand the zones of groundwater contribution to the wells along with a potential contaminant inventory in those areas to minimize risk to water supplies. This work was initiated in September and will be completed for up to 20 public water systems in the coming year.

One objective of the Lower Yakima Valley Groundwater Advisory Committee (GWAC), also formed in 2012, was to develop a program that would achieve the goal of reducing nitrate levels in groundwater. This program and the 64 actions identified through a public participation process are now being implemented through partnerships and a variety of leveraged funding. A priority action for Implementation Committee is to address groundwater management and establish funding necessary for the Yakima County Department of Public Services and the Yakima Health District to actively participate in water quality improvement, testing, monitoring, scientific data analysis, and infrastructure development (Action 8).

Formatted: Font: Not Bold

Formatted: Font: Not Bold

Formatted: Font: Not Bold

This project will provide support for a groundwater contour mapping modeling tool and methodology in the Lower Yakima Valley as well as funding nitrate probes in existing monitoring wells to aid in the targeting of nonpoint source pollution reduction measures. Groundwater contour mapping increases the visible connection between land use practices on the surface and groundwater recharge, including nitrate contamination, and allows growers to observe the potential radius of their fields' influence and for stakeholders to identify influences that are up-gradient of the wells. Developing a model for mapping groundwater elevations and nitrate concentrations provided partners with a valuable tool for tracking changes in nitrate concentrations in relation to management measures used.

Formatted: Font color: Auto

The support will consist of tasks 1-2 *[1-3 if additional QAPP is needed]*:

Task 1: Kickoff Meeting, Reporting and Communication

(Modify Description if needed:)

A kick-off call will be held to review overall goals of the project and draft technical direction. If needed a follow-up call will be held to confirm details regarding implementation of the technical direction.

(note: Monthly progress calls are optional)
Additional conference calls will be scheduled as needed. EPA will be responsible for arranging for a conference call line for all calls.

EPA anticipates Task Order planning and project discussions will take place via conference calls, and that information collection and analysis (research) can be accomplished without travel.

REPORTS:

The contractor shall provide monthly progress reports on project status, progress and expenditures throughout the project duration. At the request of the project technical contact and/or TOCOR, the contractor shall provide additional progress reports.

At the end of the project, the contractor shall provide a project summary including description of the services provided, outcome of the services, description of any capacity building or coaching provided to parties, reflections on lessons learned and recommendations for improvement and/or follow-up according to the SOW of this Task Order.

Task 2: QAPP for Task 3

(Please consult Emily Cira re: whether a QAPP for Task 3 is needed. Review and analysis of existing data and reports, etc. is covered by the existing Task Order QAPP. Activities such as conducting ambient water quality monitoring will require development of a supplemental QAPP).

Task 3: Groundwater contour mapping, nitrate probe data analysis and modeling tool

(Describe specific tasks you would like to contractor to do. The more detail, the better. Provide timeframes, milestones, etc. The last task must be the delivery of the Final Report.)

A. Groundwater contour mapping tool and methodology in the Lower Yakima Valley
   1. Draft mapping data sources and methods for Implementation Committee review January 30, 2023
   2. Launch mapping site with ArcGIS online – March 30, 2023
   3. Provide shapefiles for integration into local mapping tools – June 1, 2023

Commented [TM1]: I advocate strongly for this if you guys are amenable.

Commented [TM2]: IS this referring to the ambient water quality sampling? Or just things that calling folks to gather existing data?

If it's the former and not the later, how much flexibility to we have with this? We may need to discuss alternatives if they can't travel to collect all the samples.

Commented [TM3]:
Daniela – you must weigh in here. If Tetra Tech already has an approved QAPP for this week then we're set.

If Tetra Tech needs a QAPP to do this work would they apply to HQ *OR* is it as I suspect, the State has to get an approved QAPP that Tetra Tech will need to use/follow?

Nikki – if WDOH needs the EPA approved QAPP for the ambient water quality monitoring, I'll be the one Dennis (or his staff) have to work with. I did the PFAS one barely a year ago so I still remember everything, including the insane level of detail required, the inability to reference EPA methods (like 533 for PFAS) but rather write them out, how I'm supposed to route for review & signature, that it's considered approved once I sign, etc. **We should start this process immediately since it'll take me 1-2 months** and can be moving along internally with me at EPA while the conference call are set/occur to provide direction and go over the implementation with the contractors.

Formatted: Numbered + Level: 2 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0.75" + Indent at: 1"

B. Coordinate with Yakima County to select and install nitrate probes in existing monitoring wells to aid in the targeting of nonpoint source pollution reduction measures. April- June 2023

C. Develop a model for mapping groundwater elevations and nitrate concentrations providing partners with a valuable tool for tracking changes in nitrate concentrations in relation to management measures used.

1. Draft model methodology and sources for committee review – January 30, 2023
2. First draft of model for quarterly meeting – March 2023
3. Revise and calibrate model with feedback – June 1, 2023

D. Create fact sheets and outreach materials for Yakima County Department of Public Services and the Yakima Health District to increase the visible connection between land use practices on the surface and groundwater recharge, including nitrate contamination, allowing growers to observe the potential radius of their fields' influence and for stakeholders to identify influences that are up-gradient of their wells.

1. Meet with Implementation Committee and partners to generate ideas for tools – December 15, 2022
2. Draft fact sheets and outreach materials – February 15, 2023
3. Revise, translate and finalize outreach materials – May 1, 2023

E. Final Report: Summarizing the mapping tool, modeling methodology, outreach end products and iterative review process with stakeholders as well as identify practices or techniques to further reduce nutrients from sources such as stormwater, agricultural or onsite wastewater to achieve load reduction goals.

Formatted: Numbered + Level: 1 + Numbering Style: A, B, C, … + Start at: 1 + Alignment: Left + Aligned at: 0.25" + Indent at: 0.5"

Formatted: Font color: Auto

Formatted: Indent: Left: 0.5", No bullets or

Formatted

Formatted: Font color: Auto

Formatted: Indent: Left: 0.5", No bullets or

Formatted

Formatted: Indent: Left: 0.5", No bullets or

Formatted: Numbered + Level: 1 + Numbering Style: A, B, C, … + Start at: 1 + Alignment: Left + Aligned at: 0.25" + Indent at: 0.5"

Formatted: Font: Not Italic, Font color: Auto

DELIVERABLES:

Task No.	Task Description	Desired Completion Date
1a	Kick-off Call to discuss draft technical direction	Date or timeframe e.g., "1 months from start date"
1b	Call to confirm final technical direction	
1c	Progress Reports	Monthly
2a	*Draft QAPP (if applicable)*	
2b	*Final QAPP (if applicable)*	
3a	E.g., Draft Report, Memo, etc.	
3b	[Insert any other deliverables, add rows if necessary]	
3*x*	Final Report, memo, etc,	

Commented [TM4]: I think we should start this process immediately, even before the kick off call, if it's going to be necessary. Having been though the QAPP approval process it really will take 1-2 months.